

connect

Volume 17, 2017

CONTINUOUS IMPROVEMENT

Mine to Mill

A Continuous Improvement
Success Story

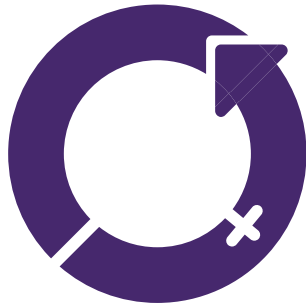
Amping Up Maintenance

A One Teck Approach to
Accelerated Maintenance Projects

Road to Safety

Highland Valley Copper's New Service Roadway

Teck



International Women's Day

Celebrating Women,
Being Bold for Change

International Women's Day—March 8, 2017

Visit connect.teck to read "*Women at Teck—Celebrating International Women's Day 2017*", profiling exceptional women from operations and offices across Teck.

Visit Teck's Facebook page to share our International Women's Day message with the important women in your life.

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#BeBoldForChange

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Thank You

Many thanks to those who contributed to and participated in this issue of *Connect*:

Mark Bernadet, General Manager, Maintenance Improvement; Claudio Bustos, Lead, Continuous Improvement, Vancouver office; María Paz de la Noi, Senior Coordinator, Administration, Exploration, Chile; Kirk Duff, Quality Assurance Specialist, Information Systems, Trail Operations; Sara Fitzel, Process Engineer, Trail Operations; Roelof Helberg, Operating Manager, Electrolytic and Melting, Trail Operations; Chris Hercun, Senior Mining Engineer, Highland Valley Copper; Glenn Johnson, Senior Mining Technology Engineer, Mining Technology Group; Lisa Jones, Senior Coordinator, Community and Aboriginal Affairs, Sparwood office; Anna Mihalj, Mine Technician, Greenhills; Sean Rudnitski, Senior Systems Analyst and Programmer, Trail Operations; Brad Steane, Civic Engineer, Highland Valley Copper; Rob Stephens, Director, Applied Research and Technology, Trail; Victoria Sterritt, Lead, Technology and Innovation, Vancouver office; Rick Woodhouse, Manager, JDE Global and Trail Information Systems, Trail Operations



On the Cover

Continuous Improvement illustrated: How Continuous Improvement initiatives are bringing value across Teck

Submissions

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Welcome

We are now well into 2017, but the extremes of 2016—historically low prices at the beginning of the year and unprecedented rallies near the end—are still fresh in our minds.

Today, it is abundantly clear that the steps we took over the last five years to reduce costs, increase efficiency and improve productivity positioned us well to weather those extremes while also allowing Teck to emerge a stronger company.

The theme for this issue, Continuous Improvement, has been an important driver for many of the cost reduction initiatives and operational improvements that have kept Teck strong during one of the longest and deepest downturns in our industry's history.

The examples we have chosen to highlight in this issue are just a few of the recent continuous improvement projects that have been brought to life by dedicated people and teams across Teck. "Mine to Mill: A Continuous Improvement Success Story" looks at optimization initiatives, which are ensuring mine and mill are working together as efficiently as possible, while

"Amping Up Maintenance" introduces us to cross-operational teams who are helping accelerate the implementation of leading maintenance practices across our operations.

Continuous Improvement is at the heart of "There's an App for That!", an innovation at Trail Operations that was inspired by a ski racing app and is helping better manage the cathode cycle at the Zinc Electrolytic Plant.

It also combines with safety in "Road to Safety", which takes us to Highland Valley Copper and along a new, safer service roadway that is diverting more than 200 vehicle trips a day from the operation's busy haul roads.

Continuous Improvement is helping us find better ways to safely reduce costs and improve performance to achieve better results across our business. It is also shining a light on the incredible talent and ingenuity of our employees, individuals and teams who know the work best and are finding new ways we can be a safer, more efficient and productive company.

I would like to thank all employees for their tremendous work throughout

2016 and during these first few months of 2017. Your efforts have been and will continue to be critical in keeping Teck well positioned as we move forward through continued market volatility. By maintaining our focus every day on the factors within our control—safety, sustainability, costs, productivity and efficiency—I know we are ready to take advantage of the opportunities and tackle the challenges that will come our way in 2017. Together, we will continue to build a safer, stronger Teck.

Don Lindsay
President and CEO



MINE TO MILL

A CONTINUOUS IMPROVEMENT SUCCESS STORY

Continuous Improvement is about taking a look at our operating processes and asking ourselves: are there ways we can do this better, to safely reduce costs and improve performance? A One Teck approach to Continuous Improvement takes this one step further, by finding ways to take successful Continuous Improvement initiatives at one site and applying them at others across Teck—and mine to mill optimization initiatives are an example of doing exactly that.

Asking Questions, Achieving Better Results

Continuous Improvement started as a discipline at Teck in 2008, to provide tools and introduce a standard methodology to support initiatives that improve operational performance. In developing our approach to Continuous Improvement, it was critical that the methodology proved simple to implement, was rigorous and led to sustained results.

“At its core, Continuous Improvement is about asking ourselves: how can we do things differently to achieve better results?” said Claudio Bustos, Lead,

Continuous Improvement, Vancouver office. “Our role as Continuous Improvement teams is to provide a methodology and resources to help sites develop and implement operational improvement initiatives—we also help track benefits to ensure sustained results.”



One of our strengths at Teck is the strong focus on site-based initiatives—using the expertise and experience at our operations to identify challenges and opportunities.



In recent years, the Continuous Improvement teams have been focused on cost reduction initiatives, to help navigate through challenging market conditions. With changing market conditions, and in order to meet our goals, focus is shifting to a combination of both revenue improvement and cost reduction projects. Additional areas of priority include:

- **Sustain the gains:** retaining discipline over cost reductions
- **Actionable sharing:** communicating success stories among our operations and identifying concrete ways to implement them at other operations
- **Business support:** helping meet or exceed targets, and looking at ways to help achieve goals in shifting market conditions.

Starting Simple

“One of our strengths at Teck is the strong focus on site-based initiatives—using the expertise and experience at our operations to identify challenges and opportunities,” said Glenn Johnson, Senior Mining Technology Engineer, Mining Technology Group, based in Trail, B.C. “Site-based mine to mill optimization initiatives usually begin by looking for ways the mine and the mill can work better together, making sure both are operating as effectively as possible. Typically, mine to mill

optimization means expending more energy at the mine level, so that once ore gets to the mill it requires less energy to process, allowing for increased throughput and ultimately achieving better overall productivity.”

Finding Focus

One of the key focus areas for mine to mill optimization has been high-energy blasting, an initiative first introduced at Carmen de Andacollo (CDA).

“Ore needs to be ground finer than flour and the most efficient way to start that process is when the rock is still intact, in the ground,” said Glenn. “When we apply explosive energy to the ore, we not only break the rock, we create micro-fractures within the individual pieces. The effect of the micro-fractures is that the bigger pieces then break more easily, which means less energy is required for crushing and grinding at the mill.”

Seeing the Benefits

Blasting for fragmentation allows us to produce not only a finer fragmentation but also the right fragmentation, which is better for the plant. As a result, mills can increase throughput and use less energy on a per tonne basis. High-energy blasting has added significant value at our mines, resulting in savings of approximately \$18 million per year at Highland Valley Copper alone. ■

Snapshot: More Mine to Mill Optimization

Blast Movement Monitoring

How Does It Work?

Blast movement monitors track where rock moves during a blast. Grade-control geologists use this information to minimize the loss of valuable ore and reduce waste fed to the mill, saving grinding energy and processing costs.

The Results?

Red Dog piloted blast movement monitors in 2016 and found that reducing ore losses in one blast paid for the whole pilot. Red Dog has estimated annual savings to be more than \$3 million from this initiative alone.

Ore Tracking

How Does It Work?

Stockpile models allow the mill to better anticipate the grade and grindability of ore, helping the mill run more efficiently.

The Results?

Thanks to stockpile modelling, the mill at Highland Valley Copper is able to make ongoing blending adjustments, saving \$1.25 million per year.



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Submit and track issues



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Amping Up Maintenance

Accelerated Maintenance Projects (AMP) are another great example of Continuous Improvement efforts being shared successfully across Teck operations through immersive learning, knowledge transfer and the exchange of perspectives.

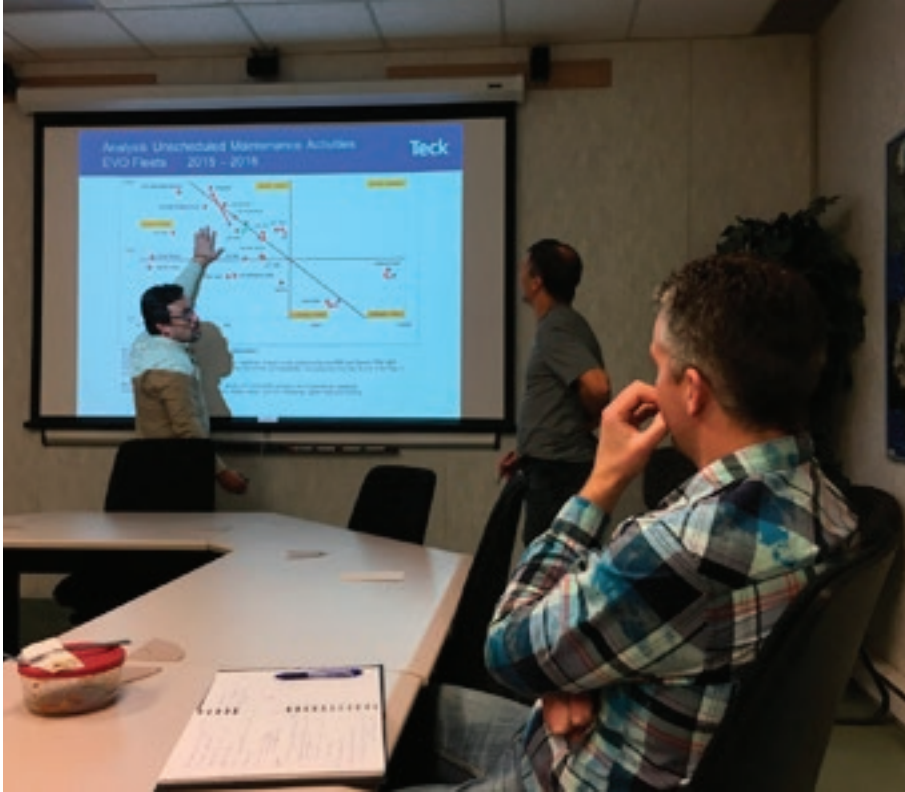


To accelerate the implementation of leading maintenance practices, operations across Teck are forming dedicated project teams that include employees from other operations. The benefits of bringing together employees from different operations are numerous: they provide additional project support, bring different skill sets, and share new ideas and perspectives.

Here are three stories of employees who participated in AMP projects at operations other than their own.

“I can help with that”

Brian Day, General Supervisor, Mine Maintenance, Greenhills Operations (GHO), responded this way at his first Highland Valley Copper (HVC) AMP leadership team meeting. The most recent member of the maintenance group to immerse himself at another site, Brian had just begun a three-month term at HVC and was answering questions around how to develop an effective Short Interval Control board, a Continuous Improvement tool that helps production



This story was adapted from an article written by Mark Bernadet, General Manager, Maintenance Improvement. Do you have a success story you'd like to share? E-mail us at connect@teck.com.

improvements during a shift. The board has added considerable value at GHO and was soon to be introduced at HVC.

Brian also engaged tradespeople and a supervisor in a conversation around how to develop Rapid Turnaround on truck box changes, something else that GHO has excelled in. In return, Brian learned about leading practices at HVC to bring back to his AMP team at GHO. "Operations and maintenance teams succeed when we work as a team, sharing ideas and providing feedback," said Brian. "It's important to complete the circle of learning, as people are more invested when they are part of the solution."

"It's a win-win-win"

Fernando Marroquin, Reliability Leader, Carmen de Andacollo Operations (CDA), immersed himself fully in the AMP initiative, spending time learning from the teams at HVC, Line Creek Operations (LCO) and Fording River Operations (FRO). In return, Fernando shared the use of a "jackknife" graph, which evaluates indirectly related variables like the duration and frequency of equipment downtime. The graphing format has been used at Teck's Chilean operations but was new to our Canadian operations. Intent on 'spreading the

word', Fernando also plans to introduce the concept of the AMP process back at CDA.

"Immersion is like spending time in a new country"

"If it weren't for AMP, I would have had to move sites to get this kind of experience," commented Dave Adema, Maintenance Superintendent, HVC, after spending 11 weeks immersed in AMP at LCO and FRO. At LCO, Dave was a significant contributor to an improved haul truck final drive maintenance strategy and organizational improvements. At FRO, he took the lead in restructuring the tool crib—an area where tools are stocked and maintained—and aided in the development of a Materials Coordinator role. Upon his return to HVC, Dave formed an on-site AMP team, which has contributed to improved haul truck availability and cost reductions.

"At each site, I made it my goal to be considered a part of the team," said Dave. "I made new contacts within the coal business unit, learned about the initiatives at play and, most importantly, I expanded my own understanding of how effective change efforts could be structured at HVC." ■

Left: Fernando Marroquin, Reliability Leader, CDA, sharing information on the jackknife graph while participating in AMP at HVC.

Right: (l-r) Shane Minnabarriet, Heavy Duty Mechanic, HVC; Ryan Minnabarriet, Heavy Duty Mechanic, HVC; Robin Letcher, Truck Shop Supervisor, HVC; Brian Day, General Supervisor, Mine Maintenance, GHO, collaborating on Rapid Turnaround for truck box changes.



Flying High

How our operations are benefiting from drones.

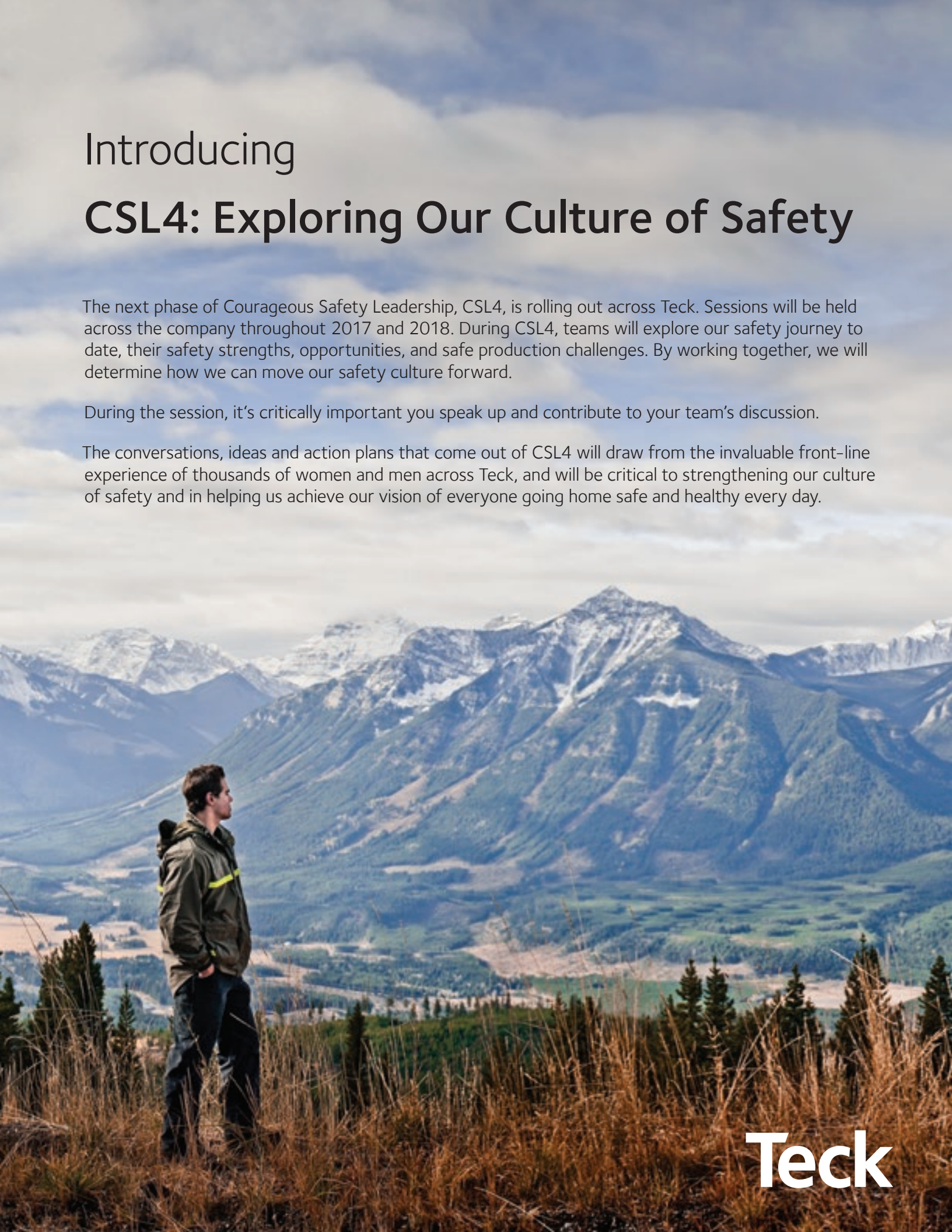
Adopting, adapting and sharing new technology is one way that our sites work towards Continuous Improvement. A recent example of this is the introduction of drones, or unmanned aircraft systems, that gather valuable information from the air.

In July 2016, Greenhills Operations acquired a drone to help monitor blasting gas clearance and to conduct post-blast evaluations. From there, the team at Greenhills found there was potential to use the technology in a variety of innovative ways, and drone use expanded to support other functions including photogrammetric surveying for volumes and design, and geotechnical analysis.

“In addition to being a safer method of gathering information from hard-to-reach places, drones give us the ability to provide views and collect data from previously inaccessible areas as well as job site overview data—information that is provided to operators, helping increase productivity,” says Anna Mihalj, Mine Technician, Greenhills.

...in a single day the drone successfully surveyed all the pits and spoils—a task that otherwise would require a helicopter at a cost of \$1,500 per hour

After realizing the value that drones added to certain tasks at Greenhills, the next step was to test the technology at other operations. Greenhills loaned their drone to Highland Valley Copper (HVC), where in a single day the drone successfully surveyed all the pits and spoils—a task that otherwise would require a helicopter at a cost of \$1,500 per hour. Since then, HVC has also integrated the regular use of drones to perform a variety of tasks, enhancing efficiency. ■

A man in a green jacket with yellow reflective stripes stands on a grassy hillside, looking out over a vast mountain range. The mountains are covered in green vegetation and patches of snow, under a cloudy sky. The foreground is filled with dry, golden-brown grass.

Introducing

CSL4: Exploring Our Culture of Safety

The next phase of Courageous Safety Leadership, CSL4, is rolling out across Teck. Sessions will be held across the company throughout 2017 and 2018. During CSL4, teams will explore our safety journey to date, their safety strengths, opportunities, and safe production challenges. By working together, we will determine how we can move our safety culture forward.

During the session, it's critically important you speak up and contribute to your team's discussion.

The conversations, ideas and action plans that come out of CSL4 will draw from the invaluable front-line experience of thousands of women and men across Teck, and will be critical to strengthening our culture of safety and in helping us achieve our vision of everyone going home safe and healthy every day.

Teck

Road to Safety

Highland Valley Copper's new service roadway creates safer travel on-site.

An aerial view of a typical mine shows a labyrinth of roadways, shared by equipment and vehicles that move material and people to various areas of the operation and help maintain the site itself.

Unfortunately, shared roadways can create greater shared risk, particularly when it comes to the potential for interaction between mobile equipment and light vehicles.

A new separate service roadway at Highland Valley Copper (HVC)—one that runs the length of the operation—is helping control that risk.

Initiated in 2016, the project developed from HVC's application of the High Potential Risk Control (HPRC) Strategy. A work team risk assessment performed around heavy vehicle and light vehicle interaction resulted in a challenge of the controls that were then in place and a recommendation to advance a light vehicle road network project to manage the high potential risk of heavy equipment interaction.

From there, teams from across the operation—from mine engineering, environment, and health and safety to site services, mine operations and materials management—came together to design and construct a separate service roadway that would divert traffic from the operation's haul roads.

Visit www.teck.com/connect to learn more about the new service roadway from Chris Hercun, Senior Mine Engineer at HVC.

Building the roadway was one part of the project. Ensuring people would use it was another. To help manage the change, team-based risk assessments were performed across the operation



and a number of groups were engaged to help transition to the new way of navigating the mine site.

Watch at www.teck.com/connect

Today, the 16-kilometre roadway—one branch of which starts near the security gate and stretches 8.5 kilometres to the Highmont pit while the other branch stretches 7.7 kilometres in the other direction to the H-H Dam—provides drivers with a safer alternative for moving around the property and is diverting more than 200 vehicle trips a day from the operation's busy haul roads.

A Cost Reduction Success Story

At a time when cost reduction was on everyone's mind, the HVC team challenged themselves to look for ways to safely reduce the cost of building the new road.

Through collaboration and innovative thinking, the team identified a number of cost-saving measures that brought the project in at almost half of the original budget.

How did they do it? HVC Civil Engineer Brad Steane explains at www.teck.com/connect.



Light Vehicles: Four Principles of Survival

Respect Intersections

Intersections represent the highest risk to light vehicles on site. Navigate your way through them carefully. Understand your position relative to other vehicles and follow site road rules.

Wear Seatbelts

Seatbelts, alongside airbags, assist with helping lessen the impact to the operator or passenger in the event of an accident.

All mobile equipment must have seatbelts—if you find any equipment not meeting requirements, please share with your supervisor.

Teck expects everyone to wear their seatbelts when a vehicle is in operation.

Obey Speed Limits

Speed limits are set for ideal conditions.

Your experience and conditions may limit your ability to drive to these speeds.

Drive within your capability.

Stay Out of Blind Spots

The choice you make on where you park can be catastrophic for you, but can also have the potential to impact our heavy equipment operators for the rest of their lives.

Always consider both the current position and future movement of the heavy equipment.

Choose to:

1. Stay out of the line of fire
2. Stay in the line of sight
3. Ensure heavy equipment is secure
4. Consider surrounding equipment ■



Respect
Intersections



Wear
Seatbelts



Obey
Speed Limits



Stay Out
of Blind Spots

Top: Light vehicles, like the one pictured above, are seen along the service roadway and are a powerful reminder of what can happen if a driver spends one minute in a haul truck's blind spot. Installations like this are helping encourage use of the new service roadway.

Opposite page: To help drivers better navigate the new roads, road signage was aligned with provincial standards to help ensure adherence to safe road practice.

PEOPLE & PLACES



Rob Stephens

Director, Applied Research and Technology (ART), Trail

When did you start at the company, and at which site/office?

I first began in 1998 at Cominco Research, working on projects for Trail Operations. I eventually became a Senior Production Engineer and then Superintendent of Technical Support there, before returning to ART in 2010.

Could you provide a brief description of what you do in your role?

I provide leadership for the Applied Research and Technology group around critical technologies that influence Teck's outcomes company-wide—from water treatment to coal processing to mill optimization.

What is your favourite part about your job?

I like the interplay of technology and people. The group here is driven by change—they love to see new ideas identified, developed, implemented—and I enjoy getting to help the team work together to do great things.

What is your most memorable moment working at Teck to date?

Taking a project all the way through, from concept to implementation, is quite memorable; specifically, I'd say redesigning the Dressing Plant to add a detinning step in the lead smelter stands out. It was a new process developed over two and a half years, and I ended up commissioning it.

What is your favourite activity outside of work, and why?

I love to play Ultimate Frisbee—I've played for 28 years. When I play I'm focused on what I'm doing and it clears my mind.

Victoria Sterritt

Lead, Technology and Innovation Vancouver Office

When did you start at the company, and at which site/office?

I started as a part-time student in 2005 and as a full-time geophysicist in 2007, in the Vancouver Exploration group.

Could you provide a brief description of what you do in your role?

Together with the Vancouver-based Technology and Innovation group, I help support multidisciplinary teams as they deep-dive into transformational technologies; understand and share high-value activities between sites; and identify, assess and implement new technologies.

What is your favourite part about your job?

I love the variety of this role. I can be working with complex economic models, researching some groundbreaking technology, thinking about the regulatory impacts of a different technology, or learning about innovative processes and products that sites are implementing—all within one morning!

What is your most memorable moment working at Teck to date?

One of my many delightful memories was a Valentine's Day that I spent in rural Ontario with three co-workers on a very cold, challenging winter job. They bought me heart doughnuts and we had a pillow fight. To this day, I'm thrilled to see and spend time with that team.

What is your favourite activity outside of work, and why?

In the winter, my favourite activity is skiing/touring. I love being active in the mountains with good friends.



Castlegar, B.C.

Kirk Duff,
Quality Assurance Specialist,
Information Systems
Trail Operations

What is your community's point of pride?

There are a few standouts for me—the downtown riverfront Millennium Park with its beautiful walkway, Rotary workout centre, Celgar Pavilion and the swimming ponds. They're a real showpiece for the whole family!

When visiting, what's a "must-see"?

Castlegar is the 'Sculpture Capital of Canada', home to the Castlegar Sculpture Walk. It's an annual outdoor showcase of more than 30 international works of art on display throughout the year, with a complete changeover each May.

What is the area's best-kept secret?

Centrally located in the West Kootenays, Castlegar and the surrounding areas are known for their cultural diversity, which is celebrated at the annual Multi-Cultural Day on BC Family Day in February, and at the Kootenay Festival held in July.

Is there anything the area is famous for?

Well, I suppose that would be the West Kootenay Regional Airport in Castlegar, and the ongoing struggle to get planes in and out during inclement weather!

Is there anything else you'd like other Teck employees to know about the area?

Whether you live in or are just passing through the West Kootenays, there are excellent scenic highway routes that can help you explore the entire area.



Santiago, Chile

María Paz de la Noi
Senior Coordinator, Administration
Exploration, Chile

What is your community's point of pride?

We are known for being very warm—we always try to help visitors and make them feel at home. Also, due to our geographic layout, you can visit the beach, mountains and country all in one day if you wish. All three areas have their own beauty. And, of course, our climate allows us to have excellent grape quality, which gives us excellent wine!

When visiting, what's a "must-see"?

An area downtown called Barrio Lastarria is very nice—it has restaurants, cafeterias, bookstores and old houses with beautiful architecture—these houses have survived several big earthquakes.

What's a typical weekend like there?

Our surroundings include beautiful parks and green areas, which are great for getting together with family and friends.

What's your favourite restaurant in the community?

Some areas that are well known for having very good restaurants are El Golf, Borde Rio, Providencia and Nueva Costanera.

Is there anything else you'd like other Teck employees to know about the area?

Come down to visit us and we will make our best effort to help you have a wonderful time!

A PICTURE IS WORTH 1,000 WORDS

1. On December 7, 2016, Fort Chipewyan Métis Local 125 and Teck signed a participation agreement for Teck's proposed Frontier oil sands project, located in the traditional territory of the Fort Chipewyan Métis. Pictured here, Fort Chipewyan Métis President Fred (Jumbo) Fraser with Marcia Smith, Senior Vice President, Sustainability and External Affairs, Teck.



2. Representatives from Teck were on hand at the opening of a new clinical lab at the Andacollo Hospital near Carmen de Andacollo Operations in Chile. The laboratory, funded by the Andacollo Health Bureau, the municipality, and support from Teck, features modern equipment that will benefit more than 10,000 people in the region.



3. Congratulations to the Teck Investor Relations team, which has been presented with the *IR Magazine* award for Best IR by a Canadian Company in the US Market. Pictured are Sheila Ryles, Marketing Communications Specialist, and Michael Schwartz, Manager, Market Research, both based in our Toronto office, who accepted the award on Teck's behalf on February 2.



4. Skier Hannah Droppo races in the Teck Okanagan Ski Race hosted by the Sun Peaks Alpine Club on January 14.

5. Jeff Thornton, Lead Pension Analyst, Human Resources, Vancouver office, made his 100th donation at Canadian Blood Services (CBS) while being cheered on by his colleagues. The milestone means Jeff has saved the lives of more than 300 people.



4



5

6. Pend Oreille Mine hosted their second annual Family Movie Night on December 9. Employees and community members were invited to visit with Santa and enjoy hot cocoa and cookies prior to a showing of *The Polar Express*. Admission to the event was by toy donation, and more than 90 toys were collected for children in the community; (l – r) event organizers Samie Bean, Malissa Andersen, Santa (Bobby O'Brien) and Barbara Brice.



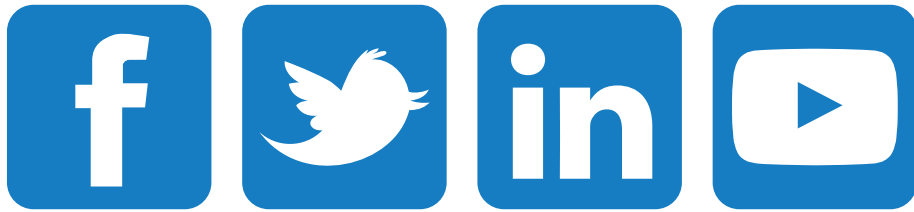
7. President and CEO Don Lindsay answers employee questions with moderator Alexa Young, Manager, Government Affairs, during the most recent Let's Talk event on March 2 in Vancouver.



8. Employees at Teck's Mountain View office in Sparwood showed their support for Pink Shirt Day on February 22, a province-wide campaign in B.C. to raise awareness and funds for anti-bullying initiatives.



Photo submissions are welcome from employees across Teck and may be sent to connect@teck.com.



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We're sharing Teck's stories on social media. Visit us online to find these and more.

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From Arctic foxes to bears to caribou, all of the areas where we operate are home to diverse wildlife. See the "bear facts" about how our Cardinal River Operations is working to help grizzlies thrive.



Happy **#InternationalWomensDay!**
Meet some of the many talented women that work at Teck.
#BeBoldForChange



Reclamation is how we restore mined land for productive uses once mining is complete. Learn more at www.teck.com/aftermining.



Learn how Teck made mammograms mobile to help women in remote areas of Chile access this potentially life-saving screening.



An All-You-Can-Eat Trail Tradition

A trip to Trail Operations isn't complete without a visit to The Colander, a nearby restaurant rich in Italian flavours and local history.

First opened in 1972, the restaurant served a hungry population strongly made up of immigrant workers, many of whom were skilled tradespeople arriving at Trail Operations in the West Kootenay region of B.C. from Italy in search of employment after the Second World War. That influx brought with it the need for dining options that satisfied the workers' Mediterranean palates, and from there The Colander restaurant was born.

To meet the demand, chef Angelina Infanti cooked up delicious, classic Italian dishes that won over the hearts and stomachs of newcomers and locals alike, and within two years the popular restaurant had outgrown its humble beginnings and moved to the larger location where it operates today.

The Colander was known for many things but what cemented its place as a Trail landmark was the introduction of the famous "Colander Special"—all-you-can-eat spaghetti, two meatballs, two pieces of chicken, jojo potatoes, green salad and a crusty bun. Trail Operations employees would often take their families out for a dinner special using saved-up "pinkies", a pink meal ticket which was given to employees who worked a certain amount of overtime and provided them with the equivalent value of a meal.

"I believe what really got people used to going out for dinner was when Trail Operations introduced the overtime meal ticket," recalls Gary LeRose, manager and owner of The Colander, who has spent nearly 50 years working in the family-owned restaurant, which has a long-standing relationship with Teck.

Gary notes that, as a result, there was a significant increase in business and a shift in how people perceived eating out.

“The pink meal ticket taught locals that it’s okay to go out and eat supper, and that you don’t have to cook at home every day.”

That concept had a positive impact on the restaurant, which in the late 1990s would put through 700 to 800 orders a night, and sell two tons of pasta a month to keep up with demand.

Nowadays, the menu has changed to satisfy the shifting appetites of its diverse clientele, but the restaurant’s special, and its family-style dining, are still front and centre.

“We always say, Family-style first,” says Gary, who smiles when he thinks of the various customers who gather at the restaurant. “We’ve had hockey teams sitting two tables away from Teck senior management. The Teck folks are entertaining people from out of town and the hockey players are singing songs about their win. That’s just the way it goes here.”

Because the familiar favourites are also good served cold, people passing through town will also often take additional food to go. One commonly requested ‘to go’ order and a particular point of pride is The Colander’s spaghetti, which features the LeRose family’s secret sauce recipe, made the old-fashioned way using locally-sourced fresh ingredients.

And while many love the restaurant for its hearty, tasty meals, the connection between Teck and the establishment is often more personal.

“Many Trail Operations’ employees have a special connection to The Colander,” says Carol Vanelli Worosz, Community Engagement Leader with Teck. “Either through work with safety dinners or overtime meals, or sometimes having worked there as a teenager or having a child work there now. There are some things that are iconic when you think of Trail: there’s the Smoke Eaters hockey team, Trail Operations, and then there’s The Colander. It’s true to its slogan—it’s a Trail tradition.” ■



Opposite: Gary, Mary, and Michael LeRose – two generations of Colander family operators, show grandson Easton the trade.

Top: Colander cooks Marina and Cheryl prepare some of the 35 gallons of fresh sauce the restaurant produces daily.

Above left: Guarding the wall of memories, business partner Mary LeRose shows visitors pictures of children and grandchildren of those who have worked at The Colander over the years.

Above right: An ad from the *Trail Times* in 1975, highlighting the cabaret nights hosted by The Colander.



There's an App for That!

Trail Operations wanted to find a better way to manage the cathode cycle at the Zinc Electrolytic Plant, one that would improve zinc production in a cost-effective way. Process Engineer Sara Fitzel came up with a solution that was not only innovative, it was also inspired by a most unlikely place: the local ski club.

The Challenge

An ongoing challenge at Trail Operations' Zinc Electrolytic Plant was tracking the length of time that cathodes were placed in a cell containing zinc electrolyte. When electrical current flows through the electrolyte, pure zinc metal plates out of the electrolyte onto the cathodes. The plated cathodes are removed from

the cells, the zinc harvested and the bare cathodes replaced into the cells for the next cycle of plating. Extending this plating cycle too long results in increased impurities, zinc sheet quality problems, inefficient use of electricity and, as a result, reduced zinc production. Typically, cathodes plated for 72–80 hours in the cells; the target was to reduce the time to 60 hours.

A key part of the challenge was that tracking these cathodes in a large operation like the Zinc Electrolytic Plant can be a very difficult task—the plant is the size of several football fields and contains four very large cell houses, with 560 separate cells. Also, cathode cycle management was done on paper using information provided from crane operators to shift leaders, which was not always efficient.

One Big Idea

Sara knew the local ski club used an app to track race times. Based on that, she had an idea—she theorized that the same kind of functionality could also be used to track and manage the cathode cycle.

Following some experimentation and lunchroom tabletop demonstrations, Sara was given permission to pilot an app solution in one of the four cell houses, and then began working with Sean Rudnitski, Senior Systems Analyst and Programmer, to manage any associated risks and to capture the data from the app for integration with Teck systems.

After a small-scale pilot was successfully tested, the innovative new system was soon scaled to all four cell houses using a custom Teck iPad app—built in-house by Sean—that addressed system risk and other specific needs.

The app was not only a first for Teck, it was also a first for Sean, who learned the technology quickly and developed the cathode cycle management app as his first-ever mobile project.

Sara recently demonstrated the new app to a group visiting Trail. Visit www.teck.com/connect to watch a portion of that demo.

An A+ App

As a result, plating time for zinc was 62.7 hours in the first quarter of 2016, compared to 71.7 hours the previous year—a significant improvement, given that a 1% reduction in cathode plating time translates to a \$2.46 million annual cost reduction in producing zinc.



As a result, plating time for zinc was 62.7 hours in the first quarter of 2016, compared to 71.7 hours the previous year.

The app not only successfully tracks the cathode plating time, but it also gives insight to other areas requiring improvement. For example, the app includes real-time integration of plating time data into forecasting tools for managing cell house hours, crucial to maintaining production during any non-routine operating conditions.

“The success of this project was a true team effort—Sara had a great idea and Sean created the nuts and bolts that put that idea into action,” said Rick Woodhouse, Manager, JDE Global & Trail Information Systems.

Roelof Helberg, Operating Manager, Electrolytic and Melting, added: “Both team members used ingenuity, determination, creativity and many long hours to solve a problem that had been plaguing the plant for years. Projects like this play a major role in Continuous Improvement and in our ability to sustainably produce more zinc.” ■

Sean Rudnitski and Sara Fitzel were the recipients of a 2016 Teck Excellence Award in the area of Cost Reduction and Innovation for their cathode cycle tracking app.



Watch at www.teck.com/connect

Partnering to Maintain and Protect Outdoor Recreation

The foothills of Alberta near our Cardinal River Operations are home to vast forested terrain, spectacular lakes and local wildlife. Rich in recreational opportunities such as camping, hiking and fishing, this natural habitat is greatly valued by locals and visitors alike.

The Foothills Recreation Management Association (FRMA), a group of companies and organizations including Teck and West Fraser, assists in maintaining this region. Teck has been a proud supporter of the FRMA for over a decade and became their main partner through our community investment program in 2011.

The FRMA is committed to providing safe and affordable outdoor recreation opportunities through management of 15 campgrounds and eight trail systems in the foothills area near the communities of Hinton, Edson, Robb, Cadomin and Brule, Alberta.

“Collaborating with Teck through the FRMA has helped to protect and preserve an incredible region for everyone to enjoy,” said Aaron Jones, West Fraser. “The majority of campsites maintained through the FRMA are in provincial parks, and through some sites, visitors can access Jasper National Park.”

Protecting Our Natural Environments in Partnership with Indigenous Peoples

The FRMA campgrounds and trails are managed by the Fox Creek Development Corporation, an Indigenous-owned and-operated not-for-profit company committed to creating and maintaining jobs for Indigenous Peoples (treaty, non-treaty and Métis) in the Hinton area. This group has been involved in environmental protection since the 1970s and partnered with the FRMA from its inception.

Fox Creek ensures that the natural environment is protected long into the future; one of their key missions is to halt unregistered camping in the Alberta foothills, which reduces the risk of forest fires, outdoor waste and environmental damage.



Fishing in Petite Lake in the Alberta foothills.
Photo credit: Aaron Jones, West Fraser.

This case study will be featured in Teck's 2016 Sustainability Report, to be released in April 2017. For more case studies, visit www.teck.com/sustainability.

Community Values Are Teck's Values

Conducting comprehensive environmental management and supporting community initiatives are essential activities for business when it comes to being a welcome neighbour. That's why we work hard to mitigate any potential impacts and have a net positive impact on biodiversity in the region through our support of the FRMA and other activities.

"Cardinal River Operations is located very close to the region managed by the FRMA. Not only does their work align with our values, but it also supports an Aboriginal business," said Lisa Jones, Senior Coordinator, Community and Aboriginal Affairs.

"Protecting the environment and supporting communities and Indigenous Peoples are key components of our approach to sustainability, and this program really represents sustainability in action." ■

Protecting the environment and supporting communities and Indigenous Peoples are key components of our approach to sustainability, and this program really represents sustainability in action.

Taking Action on Climate Change

A closer look at our four pillars of climate action.

At Teck, we believe our company and our industry have an important role to play in helping tackle the global challenge of climate change. We recognize that human activities are contributing to climate change and we are taking action to reduce greenhouse gas (GHG) emissions by improving energy efficiency, implementing low-carbon technologies and advocating for carbon pricing. That includes working to reduce our own emissions as well as advocating for policies that support the world's transition to a low-carbon economy.

To date, we have cut our GHG emissions by over 200,000 tonnes, and our long-term target is to reduce GHGs by 450,000 tonnes by 2030. At the same time, we also know that the metals and minerals we produce are essential to building the technologies and infrastructure necessary to reduce GHGs and adapt to the effects of climate change, and that continued responsible production of these products is essential to the global effort to combat human-caused climate change. ■

For more information on Teck's **Climate Action Strategy**, visit: www.teck.com/climateaction.

Our strategy to contribute to global climate action, adapt to a low-carbon economy and continue to responsibly produce the materials essential for society is built around four pillars:



1. Reducing our carbon footprint

We have set long-term targets to reduce GHG emissions and are working to achieve them through innovation, improved efficiency and adoption of low-carbon technologies.



2. Positioning Teck for the low-carbon economy

Our diversified mix of products and focus on efficient, low-cost operations will ensure Teck remains competitive throughout the shift to a low-carbon economy.



3. Advocating for climate action

We support action at all levels to combat climate change and are actively advocating for broad-based, effective carbon pricing.



4. Adapting to the physical impacts

We are adapting to the physical impacts of climate change and increasing the resilience of our operations by incorporating forecasted climate scenarios into project design and mine closure planning.

Commodity Fast Facts

Coal

- Coal is the single largest commodity carried by Canadian railways, with more than 30 million tonnes moving along them annually.
- Steelmaking coal is required to build infrastructure necessary to reduce GHG emissions, such as rapid transit and wind turbines.

Sources: Coal Association of Canada, www.teck.com

Copper

- Each new generation of cars needs more copper wiring than the one before. In the manufacturing process, cars that run on gasoline typically require 55 pounds (24.94 kg) of copper wiring. Hybrid cars need around 110 pounds (49.89 kg) of copper wiring, and electric cars need 165 pounds (74.84 kg) of copper wiring.
- Newly developing energy sources require a great deal of copper to run. For example, each megawatt of wind power capacity uses an average of 3.6 tonnes of copper. Electric trolleys, buses and subway cars use about 2,300 pounds of copper apiece.

Source: Business Insider

Zinc

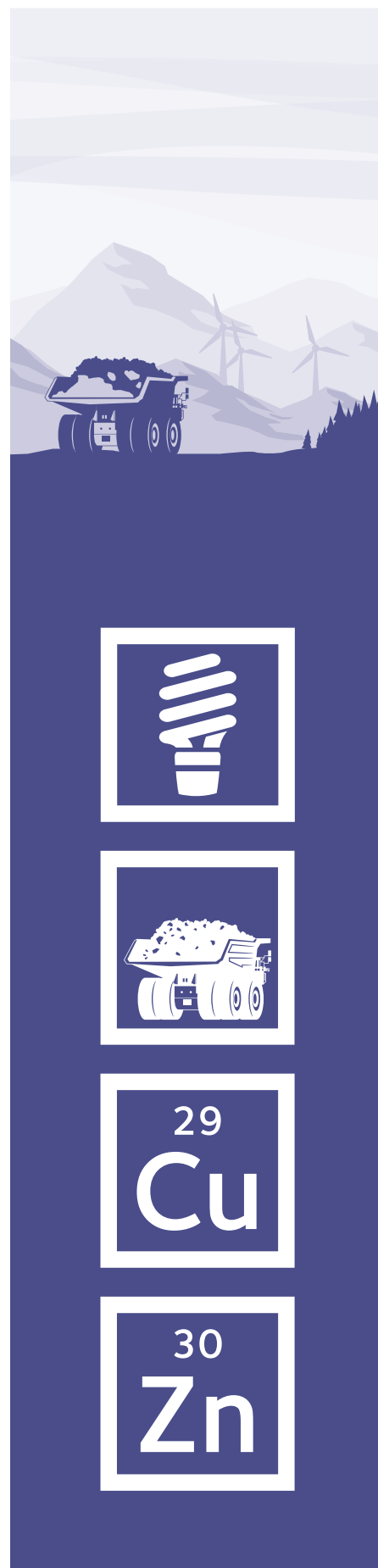
- Zinc energy storage systems, which can power hearing aids, vehicles, computers and other electronic appliances, produce zero emissions.
- Zinc is the 24th most abundant element in the Earth's crust and has been present ever since the planet formed its surface.

Sources: www.zinc.org

Energy

- The International Energy Agency projects that by 2040, the world will need 32% more energy than what is being produced today.
- Alberta's oil sands has the third-largest oil reserves in the world, after Venezuela and Saudi Arabia. ■

Sources: International Energy Agency, Government of Alberta



Every Day

2016 Annual Report

Now Available Online

This year's theme, *Every Day*, reflects our daily focus on the factors within our control—safety, sustainability, costs, productivity and efficiency. Guided by our core values, our commitment to controlling the controllable allows us to take advantage of any opportunities and tackle any challenges that come our way.

To view the full 2016 Annual Report, please visit www.teckannualreport.com.



Teck